Science & Success in Developing Countries:
Holistic Programs that Work to Prevent Teen Pregnancy, HIV & Sexually Transmitted Infections

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Advocates for Youth
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Advocates for Youth—Helping young people make safe and responsible decisions about sex

Advocates for Youth is dedicated to creating programs and advocating for policies that help young people make informed and responsible decisions about their sexual and reproductive health. Advocates provides information, training, and strategic assistance to youth-serving organizations, youth activists, policy makers, and the media in the United States and in developing nations.

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Introduction

The reproductive and sexual health choices made by the world's 1.5 billion young people will largely determine the quality of life on this planet for decades to come. Yet, educators, community leaders, and parents are often unsure about what works to improve reproductive and sexual health outcomes among youth. Until recently, program planners and community leaders in developing countries have had little help in identifying effective programs. In part, this has been due to a lack of focus and funding for evaluation and, in particular, evaluation regarding behavioral outcomes. Moreover, there has long been a shortage of peer-reviewed evaluations, since many nonprofit and nongovernmental organizations (NGOs) self-publish their findings. Fortunately, planners in developing countries now have access to an expanding body of published evaluations that identify effective programs. In fact, many of the most recently published, peer-reviewed evaluations are of highly effective programs designed and implemented in developing countries.

Youth in developing countries face significant threats to their health and well-being. These threats include the HIV and AIDS pandemic, high rates of sexually transmitted infections (STIs), and unintended pregnancies that may result in maternal morbidity and/or mortality. Policy makers and program planners should look to the body of published evaluation and research to identify programs that have proven effective with youth in similar circumstances. To that end, this paper compiles descriptions of 10 rigorously evaluated programs that have been effective in reducing behavioral risks for pregnancy and STIs, including HIV, among youth in developing countries.

Advocates for Youth conducted an exhaustive literature review of nearly 200 programs in developing countries. From among them, Advocates selected those programs with evaluations that showed impact on sexual behaviors and/or on sexual health outcomes. Advocates reviewed the evaluations against its criteria for inclusion (see below). As a result, Advocates was able to identify the 10 highly effective programs highlighted in this document. In addition, Advocates previously published a review of 19 highly effective, U.S.-based programs that may also be useful, if culturally adapted, in developing countries.*

Criteria for Inclusion

Programs included in this document all had evaluations that:

- Were published in peer-reviewed journals (a proxy for the quality of evaluation design and analysis);
- Used an experimental or quasi-experimental design, with treatment and control / comparison conditions;
- Included at least 100 young people in intervention and control / comparison groups.

Further, the evaluations either:

- Included follow-up, collecting data from both groups at three months or later after the intervention; and
- Demonstrated that the program showed two or more positive behavior changes among intervention youth, relative to comparison / controls, including:
  - Delay in the initiation of sexual intercourse
  - Increase in abstinence / reduction in the frequency of sexual intercourse
  - Reduction in the number of sex partners / increase in monogamy
  - Increase in the use or consistency of use of effective methods of contraception
  - Increase in the use or consistency of use of condoms / reduction in the incidence of unprotected sex,

Or

- Showed effectiveness in reducing incidence or rates of pregnancy, STIs, or HIV in intervention youth relative to comparison / controls. [See Table A, next page.]

*Science & Success: Sex Education & Other Programs that Work to Prevent Teen Pregnancy, HIV & Sexually Transmitted Infections, 2003; www.advocatesforyouth.org/programsthatwork/index.htm

Outcomes

Of the 10 programs identified as meeting the criteria above, evaluations showed the following: [See Table A below.]

- **Delayed Sexual Initiation**—Six programs demonstrated statistically significant delays in the initiation of sexual intercourse among intervention youth, relative to comparisons.
- **Risk Reduction for Sexually Active Youth**—Programs also demonstrated statistically significant reductions in other risk-taking behaviors among sexually active intervention youth relative to comparison youth. Specifically,
  - 8 programs demonstrated an increased use of condoms.
  - 6 programs showed a reduced number of sex partners among participants.
  - 5 programs showed an increased use of modern methods of contraception.
  - 3 programs demonstrated increased abstinence among sexually experienced youth.
- **Reduced Incidence of Sexually Transmitted Infections**—One program demonstrated a statistically significant reduction in STIs among intervention youth, relative to comparison youth.
- **Reduced Incidence of Pregnancy**—One program demonstrated a statistically significant reduction in the incidence of pregnancy among intervention youth, relative to comparison youth.

Table A. Behavioral & Health Outcomes among Youth Exposed to the Program

PROGRAMS	COUNTRY OF ORIGIN	BEHAVIORAL OUTCOMES					HEALTH IMPACTS	
		Delayed Initiation of Sex	Increased Abstinence	Reduced Number of Sex Partners	Increased Use of Condoms	Increased Use of Contra-ception	Decreased Incidence of STIs	Decreased Incidence of Pregnancy
1. Horizon Jeunes	Cameroon	★	★	★	★	★		
2. STI Counseling and Treatment Program	Nigeria				★		★	
3. Nyeri Youth Health Project	Kenya	★	★	★	★			
4. Promoting Sexual Responsibility among Youth	Zimbabwe	★	★	★	★	★		
5. HIV Prevention Education for High School Students	Nigeria	★		★	★			
6. School Health Education	Uganda	★		★				
7. Family AIDS Education & Prevention through Imams	Uganda			★	★			
8. Entre Nous Jeunes Peer Education	Cameroon				★	★		
9. Sexual Health Information & Services for Youth	China				★	★		
10. Adolescence: Time of Choices	Chile	★				★		★

Note: Blank boxes indicate either: 1) the program did not measure, nor aim at, this particular outcome / impact; or 2) the program did not achieve a significant positive outcome in regard to the particular behavior or impact.

Program Strategies

All of the programs described here include *comprehensive* sex education. That is, each provides information about abstinence *and* the use of contraception and condoms. Eight programs also provide sexual health services, contraceptive supplies, and/or referral to sexual health services. Seven programs involve community members, including parents, religious leaders, health care providers, or others, in designing and supporting programs for youth. Six programs directly involve youth in program planning and operations. Six programs rely, at least in part, on IEC (information, education, and communication) and/or mass media strategies, including two that are framed within national social marketing programs (*Horizon Jeunes* and *Promoting Sexual Responsibility among Youth*).

Table B. Successful Programs: Important Program Strategies

PROGRAMS	COUNTRY OF ORIGIN	INFORMATION & EDUCATION SERVICES		HEALTH SERVICES			COMMUNITY PARTICIPATION	
		Comprehensive Info on Abstinence & Contraception	IEC and/or Mass Media	Referral to Sexual Health Services	Youth-Friendly Services	Provision of Contraceptives and/or Condoms	Youth Involvement	Community Involvement
1. Horizon Jeunes	Cameroon	★	★		★	★	★	★
2. STI Counseling and Treatment Program	Nigeria	★	★	★	★		★	
3. Nyeri Youth Health Project	Kenya	★		★	★			★
4. Promoting Sexual Responsibility among Youth	Zimbabwe	★	★	★	★		★	★
5. HIV Prevention Education for High School Students	Nigeria	★		★				
6. School Health Education	Uganda	★	★				★	★
7. Family AIDS Education & Prevention through Imams	Uganda	★						★
8. Entre Nous Jeunes Peer Education	Cameroon	★	★	★			★	
9. Sexual Health Information & Services for Youth	China	★	★		★	★	★	★
10. Adolescence: Time of Choices	Chile	★		★				★

Setting of Effective Programs

All of the highlighted programs were designed and implemented within developing countries, most in sub-Saharan Africa, one in eastern Asia, and one in Latin America. Within the description of each program, Advocates for Youth includes information about the program's components, the populations with whom evaluation showed the program to be most effective, the evaluation methodology, and its findings. To the best of Advocates' knowledge, there has not been a published evaluation of a replication of any of these programs.

Conclusions

The 10 programs highlighted in this document treat youth holistically—they acknowledge sexual development as normal for youth and offer youth community-wide support for making healthy decisions about sex. Every program actively involves either youth or the community or both. All ten provide youth with comprehensive information about sexual health—including abstinence *and* contraception and condoms. It is also worth noting that eight of the ten provide some form of health services or referral to services; six include mass media strategies to reinforce sexual health messages and to encourage youth to make healthy decisions about sex.

These programs underscore the reliability of more than two decades of research showing that:

- Education that includes information about both abstinence and contraception is the most effective in delaying the onset of first sexual intercourse and in ensuring that young people protect themselves when they become sexually active.[1,2,3,4,5,6,7]
- Neither provision of information nor access to contraception and condoms increases sexual activity among youth.[1,2,3,4,5,6,7]

By demonstrating what committed communities can accomplish in devising culturally appropriate, thoughtful, and realistic programs to improve the health and the future of adolescents, these programs offer effective strategies that can be considered and adapted by other concerned communities.

These programs also underscore the critical importance of funding to support short- and long-term evaluation to determine *behavioral and health outcomes* of community-driven programs to improve adolescent sexual health. In fact, behavior and health outcomes are critical to identifying effective programs simply because a great deal of research around the world shows that changes in knowledge and attitudes alone do **not** necessarily result in behavior change.[8]

In a world where adolescents are at high risk for unintended pregnancy—including maternal morbidity and mortality—as well as to infection with HIV and other STIs, reliance on proven, effective programs is essential. The 10 programs highlighted here provide both examples and models for programs in other communities around the world.

Horizon Jeunes (Cameroon)

Program Components

- Comprehensive sexual health program, including messages to encourage 1) delay in the initiation of sex and 2) reductions in sexual risk-taking behaviors among sexually experienced youth
- Youth-developed and youth-targeted campaign messages disseminated at live events, on radio talk shows, in brochures, and by peer educators
- Peer education
- *Horizon Jeunes* youth clubs
- Distribution of information, education, and communication (IEC) products, such as brochures
- Youth-targeted distribution of condoms and oral contraceptives
- Training of health care providers in making services youth-friendly
- Involvement of parents and community leaders, including local health and education officials
- Integration within a nationwide social marketing program
- Mass media advertising

For Use With

- Urban youth
- Male and female youth, ages 12 to 22
- In- and out-of-school youth

Evaluation Methodology

- Quasi-experimental evaluation design, using baseline and post-intervention surveys at least 14 months apart in two small cities in Cameroon: Edéa, the intervention site, and Bafia, the comparison site
- Baseline survey among randomly selected youth ages 12 to 22 in each city (n=1,606; n=805 in Edéa; n=801 in Bafia); follow-up survey among randomly selected youth ages 12 to 22 in each city (n=1,633; n=811 in Edéa; n=822 in Bafia)
- Sales data and data on health center visits for family planning

Evaluation Findings

- Delayed initiation of sexual intercourse
- Increased abstinence among sexually experienced youth
- Reduced number of sexual partners—males
- Increased use of contraception—males
- Increased use of condoms—females

Program Description

Horizon Jeunes is an adolescent reproductive health program implemented within and integrated into a larger, nationwide, social marketing program. *Horizon Jeunes* is based on the revised health belief model and aims to increase adolescents' awareness and use of preventive behaviors and sexual health products and services. In particular, the intervention encourages adolescents to delay the initiation of sex *and* to use condoms to prevent HIV and STIs when they do choose to initiate sex. It also encourages sexually active youth to use modern contraceptive methods and to abstain in order to prevent unintended pregnancy.[9,10]

The program includes peer educators, trained in the techniques of social marketing and of interpersonal communication to promote behavior change. Peer educators also function as mobile distributors of the Prudence Plus condoms promoted in the nationwide social marketing campaign. Pharmacies sell Novelle oral contraceptives, also promoted in the nationwide social marketing campaign. The project educates youth about the availability of the condoms and oral contraceptives and works to increase providers' willingness to serve unmarried young women. Peer educators lead in the creation of school-based youth clubs that distribute project materials to club members. Radio spots advertise events organized by *Horizon Jeunes* and also carry informative commercials with sexual health information for youth. Talk shows address sexual health topics of interest to youth, including HIV and AIDS, other STIs, unwanted pregnancy, abstinence, fidelity, condom use, and parent-child communication about sexuality. Finally, promotional events—such as condom demonstrations at night clubs, presentations at local soccer games, and theatrical sketches on reproductive health—provide

ongoing reinforcement of messages promoting safer sexual behaviors among youth. Other components of the program target parents, teachers, and community leaders and include meetings between adults, peer educators, and youth.[9,10]

Evaluation Methodology

The project was evaluated using a quasi-experimental research design. Data were collected at baseline and post-intervention in two cities: Edéa, the intervention site, and Bafia, the comparison site. Edéa is a cosmopolitan city of about 86,000 people, located about 40 miles from Douala and on the main road to Yaoundé. Bafia is a city of about 73,000 people, about 80 miles north of Yaoundé and sufficiently far from the intervention site to prevent spillover of the intervention. Bafia is situated on another main road, between Yaoundé and Bafoussam. Both Edéa and Bafia have populations of mixed ethnicity: Bakoko and Bassa in Edéa, and Bafia and Yambassa in Bafia; these indigenous groups do not dominate in either town. In both sites, the population is fairly evenly divided between Muslims, Christians, and animists. Both have government-run hospitals, clinics, and family planning and AIDS service centers. At the same time, Edéa is a cosmopolitan city with an industrial center that attracts substantial numbers of immigrants; Bafia is an agricultural town with no industry and little immigration. Because of this, evaluation controlled for differences in characteristics between the samples.[9,10]

Researchers obtained baseline data during July and August 1996 and follow-up data in October and November 1997, using the same technique to randomly identify survey participants. Using multistage sampling, 30 clusters of households were drawn in each site, with individual households randomly selected in each cluster. Within each household, researchers randomly chose one individual age 12 to 22, using the last birthday technique. During home visits, researchers obtained informed consent from both the head of household and the prospective respondent and conducted the interview. At baseline, 1,606 youth were surveyed (n=805 in the intervention site; n=801 in the comparison site); at follow-up, 1,633 youth were surveyed (n=811 in the intervention site; n=822 in the comparison site). Total refusal rate was approximately eight percent. Samples obtained at baseline and follow-up were independent of one another, and the evaluation examined aggregate changes in behaviors by comparing all respondents living in the intervention site (regardless of exposure to the program) with all respondents living in the comparison site.[9,10]

Researchers observed significant group differences on all demographic variables. For example at follow-up, the males in the comparison city were about one year younger than comparison city males at baseline (16.5 versus 17.9 years at baseline). At follow-up, a larger proportion of females in the comparison city were married or cohabiting than were females in the intervention city at follow-up or in either city at baseline. Youth in the comparison city, at baseline and follow-up, were significantly more Muslim and less Christian than those in the intervention city at either time, and respondents in the comparison city were also less likely to attend school. Finally, males at baseline were more likely to report being divorced or widowed than males at follow-up. Thus, analysis controlled for differences in age, religion, marital status, education, type of school, employment status, parity, and fertility intentions.[9,10]

Outcomes

- **Knowledge—**
  - The intervention had a significant effect on knowledge of condoms for birth control among both male and female youth. The proportion of male youth in the intervention community who knew of the benefits of condoms for birth control increased from 65 to 71 percent between baseline and follow-up, while the proportion declined from 55 to 42 percent among males in the comparison town. Among intervention site females, the proportion knowing about condoms for birth control rose from 39 to 74 percent, versus a slight increase from 36 to 44 percent among females in the comparison town.[10]
  - The intervention also significantly increased male and female youth's knowledge of oral contraceptives—from 13 to 39 percent of intervention city males, versus a change from nine to 11 percent of comparison city males; and from 23 to 60 percent of intervention city females, versus a change from 14 to 25 percent of comparison city females.[10]
  - The intervention significantly increased male youth's knowledge of the intrauterine device (IUD) and injectable contraception (rising from four to 27 percent) versus little change among males in the comparison community (from three to eight percent).[10]
- **Attitudes—**
  - The proportion of male respondents who considered themselves at risk for STIs or HIV/AIDS increased significantly in both intervention and comparison sites between 1996 and 1997, and increased significantly more among males in the intervention site (13 to 50 percent versus 18 to 26 percent among comparison site males).[10]
  - The intervention significantly increased females' awareness of their own responsibility to use protection during sex; the proportion of intervention city females who saw themselves as responsible for protection rose from 74 percent at baseline to 84 percent at follow-up, versus a slight decline from 76 to 74 percent among comparison site females.[10]
- **Behaviors—**
  - **Delayed initiation of sexual intercourse—**Among male youth in the intervention site, the proportion of respondents who initiated sexual intercourse prior to age 15 decreased significantly (down from 29 percent in 1996 to 19 percent in 1997); little change occurred among males in the comparison site (25 to 22 percent). There was also a significant decline (from 10 to four percent) in the proportion of intervention site females who initiated sex prior to age 15 while proportions rose from eight to 13 percent among comparison site females.[10]

- **Increased abstinence for pregnancy prevention among sexually experienced youth—**The intervention resulted in a statistically significant positive change in the use of abstinence for pregnancy prevention among young women (odds ratio [OR]=2.40) and among young men, (OR=3.10) in the intervention city.[9]
- **Reduced number of sex partners—**The intervention resulted in a statistically significant reduction in the proportion of young men in the intervention site reporting two or more sexual partners in the past month (down from 30 to 15 percent; OR=0.36) while the proportion of males in the comparison site reporting two or more partners in the past month rose from 29 to 35 percent.[9,10]
- **Increased use of contraception—**The intervention resulted in a statistically significant increase in the proportion of young men in the intervention city who reported using modern methods of contraception to prevent pregnancy (OR=11.05). Among males, the proportion reporting use of the IUD or injectable contraceptives increased significantly more rapidly in the intervention site (from three to 28 percent) than in the comparison site (from three to five percent).[9,10]
- **Increased use of condoms—**The intervention resulted in a significant positive change in young women's ever use of condoms, rising from 58 to 76 percent (OR=2.27) between 1996 and 1997 and of their using condoms to prevent pregnancy (rising from 21 to 52 percent between 1996 and 1997; OR=3.82). Among females in the comparison site, ever use dropped slightly (from 53 to 50 percent) and use for family planning rose far less (from 19 to 33 percent) than among females in the intervention site.[9,10]

For More Information, Contact

- **Population Services International**, 1120 19th Street NW, Suite 600, Washington, DC 20036; e-mail info@psi.org

STI Counseling and Treatment Program (Nigeria)

Program Components

- Comprehensive program, including information about abstinence and condoms, to promote STI prevention and treatment among sexually experienced youth
- Youth-led reproductive health clubs distributing IEC materials and sponsoring debates, dramas, essay contests, symposia, and films related to STI prevention and treatment
- STI health awareness campaigns, mounted by each school's reproductive health club
- Peer educators providing education about methods of preventing STIs, including abstinence and condoms
- Health professionals providing information on STI prevention and treatment
- Training of peer educators
- Training of selected medical care professionals, pharmacists, and dealers in patent medicines, in STI treatment and referral for treatment, condom provision, and partner tracing and treatment
- Referral of youth for STI testing and treatment

For Use With

- Students in senior high classes 4 and 5, ages 14 through 18
- Urban youth
- Sexually experienced youth

Evaluation Methodology

- Quasi-experimental evaluation, using a randomized, controlled design with eight secondary schools in Benin City, Edo State, Nigeria (four intervention schools in the western part of the city, four control schools in the eastern part of the city) and four control secondary schools in the nearby town of Ekpoma
- Baseline survey in September 1997 among 1,896 randomly selected students in senior classes four and five in the intervention and comparison schools; follow-up survey in July 1998 among 1,885 randomly selected students in senior classes four and five in the intervention and comparison schools

Evaluation Findings

- Reduced incidence of STIs
- Increased use of condoms
- Increased partner notification of exposure to STIs—among females
- Increased use of private physicians for STI treatment

Program Description

This STI counseling and treatment program has three components that are together designed to 1) decrease adolescents' use of 'informal' sector providers who lack training in STI treatment and 2) increase students' use of trained doctors in private practice. The first component consists of school-based reproductive health clubs where adolescents can discuss reproductive health matters. The clubs offer health awareness campaigns at which health care professionals provide students with information on STI prevention and treatment. Other activities of the reproductive health clubs include distributing educational materials on STIs, organizing debates and symposia, sponsoring dramas and essay contests, and showing films on STI prevention and treatment.[11]

The second component is peer education. Members of the reproductive health clubs are chosen by their peers to be trained as peer educators. Training lasts four weeks and covers aspects of STI prevention and treatment, symptom recognition, the benefits of early treatment, the need for professional treatment, sources of professional treatment, prevention methods, the importance of partner notification, and the need to abstain from sex during treatment for STIs. Trained peer educators provide counseling to other students, either one-on-one or in groups at breaks and after school, distribute educational materials on STIs, and refer youth with symptoms of STIs to trained health care providers.[11]

The third component of the intervention consists of training for providers of formal and informal health care. Medical care practitioners, patent medicine dealers, and pharmacists (whom adolescents identify as sources of care) are trained in the diagnosis and treatment of STIs, based on the World Health Organization (WHO) syndrome management system. This system stresses condom use and partner notification and provides different protocols of care for different groups of health care providers. Pharmacists and patent medicine dealers receive training to encourage the use of condoms and to refer adolescents to trained private practitioners. Medical

doctors, by contrast, receive training in standard WHO protocols for treatment of STIs in adolescents and to refer difficult cases to hospitals.* [11]

Evaluation Methodology

Preliminary studies indicated that Nigerian adolescents were often reluctant to seek medical treatment for STI symptoms and, when seeking treatment, often sought assistance from informal sector providers (patent medicine practitioners, traditional healers, pharmacists, and laboratory technicians). Assessment also showed that neither these nor medically trained health care professionals used standard protocols for diagnosing and treating STIs in adolescents. To that end, the Women's Health and Action Research Centre designed this program to increase youth's knowledge of STI symptoms, use of condoms, treatment-seeking behavior, and notification of partners regarding STI infection. The intervention also aimed to decrease the proportion of youth who experienced symptoms of STI and to decrease adolescents' use of informal and untrained providers.[11]

The study used a randomized, controlled design with randomly selected students from three study sites: one intervention and two comparison sites. Four secondary schools in Benin City were randomly chosen to participate as intervention sites, and four as comparison sites. The four intervention schools and the trained health care providers (formal and informal) were all located in the western part of Benin City. The comparison schools were in the eastern part of Benin City. Since it was impossible to restrict the influence of this community-based intervention to the specific, chosen intervention schools, researchers selected four secondary schools in nearby Ekpoma (a city demographically different from Benin City) as additional comparisons.[11]

Intervention and comparison schools included junior students (in classes one through three) and senior students (in classes four through six), ranging in age from 14 to 20. In order to assure that students would still be in school a year later at follow-up, the intervention focused on senior students in classes four and five and not on students in senior class six (who would have graduated). At the outset, all individual students gave informed consent to participate and all randomly selected students agreed to complete the pre-intervention and post-intervention survey questionnaires. At each selected intervention and comparison school, senior classes four and five comprised about 320 students; approximately 160 students were randomly chosen to participate in the pre- and post-intervention surveys. The same classes that took the pretest also took the follow-up, although individuals in the classes were re-sampled using random selection. Changes from pretest to follow-up were assessed at the school level.[11]

In total, 1,896 and 1,885 youth participated in the baseline and follow-up surveys, respectively. To ensure students' confidentiality, the questionnaires were self-completed and without any individual identifier. Surveyed youth were equally divided among the three study sites (youth in intervention schools n=643; youth in Benin comparison schools n=649; youth in Ekpoma comparison schools n=604). At baseline, significant demographic differences existed between the youth from Ekpoma (comparison) and youth from the two Benin groups of schools. Students in the two Benin City groups of schools (intervention and comparison) were demographically similar. Specifically, surveyed Ekpoma students were slightly more female and older by a mean of one year, compared to students from the two Benin City groups of schools. The predominant religious affiliation in Benin City was Pentecostal Church, compared to the Catholic Church in Ekpoma. In Benin City, Bini, Ishan, and Ibo were the predominant ethnic groups, compared to Ishan in Ekpoma. Surveyed students from Ekpoma came from families with a lower socioeconomic status (SES) than students from either group of Benin City schools (indicated by fewer household possessions and less paternal education).[11]

At baseline, significantly fewer students from the intervention schools and the Benin City comparison schools reported previous sexual intercourse, versus students from Ekpoma comparison schools (38, 34, and 53 percent, respectively). At baseline, proportions of sexually experienced students who reported never using a condom were similar (89, 89, and 85 percent, respectively). The proportions of sexually experienced students who reported having at least one STI symptom in the previous six months were significantly lower in the intervention schools and the Benin City comparison schools than in Ekpoma comparison schools (33, 31 and 42 percent, respectively). Finally, the proportions of students who reported using private doctors for STI symptoms, though more similar, were also lower in the intervention and the Benin City comparison schools than in Ekpoma: 18, 19, and 24 percent, respectively, visited a private doctor. On the other hand, the students from the two Benin City groups of schools were substantially more likely to report visiting a hospital or clinic than were youth in the Ekpoma comparison schools: 26, 22, and six percent, respectively.[10] As a result, multivariate analysis controlled for age, gender, religion, ethnicity, SES, living situation, and prior sexual experience.[11]

Outcomes

- **Knowledge—**
  - At posttest, students from the intervention schools were significantly more likely than students in comparison schools in either city to be able to name up to six STIs. The mean number of STIs that youth could name increased by 0.47 among youth from the intervention schools and by 0.01 and by -0.16 among youth in the Benin and Ekpoma comparison schools, respectively. The effect was statistically significant for both males and females but was especially strong among female students in the intervention schools.[11]

*Prior to the launch of this school-based intervention, students identified 40 private practitioners, 36 pharmacists, and 50 patent medicine dealers as individuals to whom they went for STI treatment. Invited to participate in training to improve their services, 28 private practitioners, 29 pharmacists, and 45 patent medicine dealers received the training.[11]

- Behaviors—
  - **Increased use of condoms**—From pre- to post-intervention, condom use among sexually experienced males and females increased significantly in the intervention schools (from 31 to 41 percent among males; from 30 to 37 percent among females). Among students in the combined comparison schools, reported condom use increased significantly among males (29 to 36 percent), but decreased among females (30 to 28 percent). As a result, the intervention showed a significant relative increase in condom use among youth in the intervention schools relative to the students in the two comparison groups of schools (OR=1.41). This statistically significant effect was due to the reported increase among female students (OR=1.80), rather than among male students (OR=1.13) in the intervention schools.[11]
  - **Increased partner notification of exposure to STI**—Among females in the intervention schools, those who notified their partners that they had an STI increased significantly from five percent at pretest to 18 percent at follow-up. There was a small, but insignificant, increase in the percentage of males in the intervention schools who notified their partners that they had an STI (nine to 10 percent). The impact of the intervention was significant versus students at both comparison groups of schools among females (OR=7.1), but not among males (OR=1.3).[11]
  - **Increased use of private physicians for STI treatment**—Among students in the intervention schools, the proportion of youth who went to private physicians for treatment for STI symptoms in the previous six months increased from 18 percent at pretest to 41 percent at follow-up (OR=3.24). A smaller, but still significant increase occurred in the proportion of students in the Benin comparison schools who sought treatment for STI symptoms from private physicians (19.0 to 29.1 percent; OR=1.75) while there was no significant change in Ekpoma (24 to 30 percent). The impact of the intervention was significant, relative to students in both the Benin and the Ekpoma comparison groups of schools (OR=1.85 and 2.31, respectively). At the same time, the decline in the proportion of students at intervention schools who sought STI treatment from pharmacists and patent medicine dealers was statistically significant (from 15 to four percent; OR=2.26), relative to students from both comparison groups of schools (OR=0.44).[11]
- Long-term impact—
  - **Reduced incidence of STIs*** —The intervention resulted in a statistically significant reduction in STI symptoms among students in the intervention schools, relative to students at both the Benin City and Ekpoma comparison schools (OR=0.63 and 0.69, respectively) as well as to students at both groups of schools, combined (OR=0.68). Among students at intervention schools at posttest, 22 percent reported STI symptoms in the past six months, compared to 33 percent at pretest. In both comparison groups of schools, students also reported a decrease in STI symptoms (31 to 29 percent in Benin City comparison schools; 42 to 35 percent in Ekpoma). The effect of the intervention appeared stronger in males (OR=0.58) than in females (OR=0.70), when the intervention schools were compared to all comparison schools.[11]

For More Information, Contact

- **Women's Health and Action Research Centre**, 4 Alofoje Street, Off Uwasota Street, Box 10231, Benin City, Edo State, Nigeria; e-mail swharc@hyperia.com

*The program measured a reduction in STI symptoms. Advocates for Youth used this as a proxy for sexually transmitted infections, in keeping with the syndrome management system of the World Health Organization.

Nyeri Youth Health Project (Kenya)

Program Components

- Comprehensive sexual health program to encourage 1) delayed initiation of sex and 2) reductions in sexual risk-taking behaviors among sexually experienced youth
- Community-designed, culturally consistent program
- Traditional reliance on young parents in the community to guide youth on sexuality-related issues
- Training of young parents to be "Friends of Youth" (FOYs) regarding adolescent sexual health issues and advocacy
- FOYs providing outreach to youth groups
- FOYs providing outreach and advocacy to adults to promote a positive environment for sexual health information and services for youth
- Sex education curriculum entitled *Life Planning Skills for Young People in Kenya*
- Training of teachers to improve communication with youth
- Training of local doctors, clinicians, and chemists in making sexual health services youth-friendly
- Referral of youth for youth-friendly sexual health services

For Use With

- Urban and rural youth, ages 10 to 24
- In- and out-of-school youth

Evaluation Methodology

- Quasi-experimental evaluation with four intervention locations in the municipality of Nyeri, Kenya, and a comparison municipality, Nyahururu
- Interviewer-administered and self-administered questionnaires at baseline in 1997 and at follow-up in 2001
- Baseline survey of 1,544 randomly selected youth in the intervention and comparison sites; follow-up survey of 1,865 randomly selected youth in intervention and comparison sites

Evaluation Findings

- Increased communication with parents and other adults about sexual health—females
- Delayed initiation of sexual intercourse—males
- Increased abstinence among sexually experienced youth—females
- Reduced number of sex partners—females
- Increased use of condoms—males

Program Description

The Nyeri Youth Health Project is a locally designed reproductive and sexual health program for young people, implemented with the assistance and guidance of the Family Planning Association of Kenya (FPAK) and the Population Council. The objectives of the Project are to delay the onset of sexual intercourse among youth who are not yet sexually active; to prevent sexually experienced youth from suffering negative consequences of sexual activity; and to create a reproductive health information and service environment responsive to the needs of youth.[12,13]

In consonance with Kikuyu traditions, the program relies on young parents, *atiri*. Specifically, the program trains the *atiri* to be "friends of youth" (FOYs) and to provide young people with guidance on sexuality-related issues. The community's members select respected and well-known young parents, who are then trained by FPAK. Trainers use *Life Planning Skills for Young People in Kenya* to improve FOYs' knowledge and skills related to values, community, adolescent development, sexuality, gender roles, relationships, pregnancy, STIs, HIV and AIDS, harmful traditional practices, substance use, children's rights, and advocacy.[12,13]

Trained FOYs conduct activities with existing youth groups and/or form new youth groups; they also work with young people individually. FOYs encourage youth to delay the initiation of sex and encourage sexually experienced youth to reduce sexual risk-taking behaviors. In addition, FOYs work with community adults to encourage positive attitudes and a positive climate within which to address adolescent sexual health issues. Finally, FOYs also work with schools, assisting teachers to better communicate with youth about sexual health. Each FOY is assigned a specific geographic area where about 300 adolescents live. While they are responsible for activities in their own area, they also work cooperatively in pairs or small groups to complement and promote each other's skills.

In addition, local doctors, clinicians, and chemists (mostly from the private sector) receive training in providing youth-friendly sexual and reproductive health services. FOYs refer youth in need of sexual health services to these providers.[12,13]

Evaluation Methodology

The Nyeri Youth Health Project comprised activities carried out between 1998 and 2000 in four areas of Nyeri (in which lived approximately 14,000 youth, ages 10 to 24). The quasi-experimental evaluation compared youth living in the project sites with youth in a comparison municipality, Nyahururu. The populations in the intervention and comparison municipalities were similar in terms of ethnic and religious composition, socioeconomic status, and health and education infrastructure. Moreover, Nyahururu is over 100 kilometers from Nyeri, making it unlikely that the Nyeri Youth Health Project affected youth in Nyahururu. Baseline and end-line surveys among youth in intervention and comparison sites permitted an assessment of the Project.[12,13]

In Nyeri, researchers conducted an initial census of all households in the project site. Households were eligible for selection if they had at least one resident age 10 to 24. Following the listing, 100 eligible households were selected per FOY area of operation, using a random number generator. [In Nyahururu, the same practice was followed, except that there were no FOY areas of operation.] In both intervention and comparison sites, one adolescent was interviewed per household. Where there was more than one adolescent per household, the Kish grid was used to randomly select one adolescent for interviewing. For each selected adolescent, interviewers paid up to three visits to the household to locate and interview the youth. In addition, the parent of every fourth selected adolescent was interviewed separately. For adolescents, interviewers used two questionnaires. The longer, more structured, interviewer-administered questionnaire collected data on knowledge, attitudes, behaviors, experiences, and lifestyle. The second, self-administered questionnaire was anonymous and collected information on more sensitive topics, such as sexual experience, use of family planning, and STI history.[12,13]

During the baseline survey in 1997, 1,544 unmarried youth, ages 10 to 24, were interviewed in Nyeri and Nyahururu. At follow-up in 2001, 1,865 youth were interviewed in the two municipalities. At baseline, 87 percent of eligible youth were interviewed and, at follow-up, 90 percent were interviewed. The sample at baseline was slightly younger than at follow-up: at baseline, only 16 to 20 percent of the sample was over age 19; at follow-up, 24 to 30 percent of the sample was over age 19. At baseline, a greater proportion of youth were in school than were in school at follow-up. Comparing respondents, youth in the intervention site were significantly more likely to be Catholic than were youth from the comparison site. Also, at follow-up, male youth from the intervention site were significantly better educated than males from the comparison site. At both baseline and follow-up, school status was a significant predictor of whether youth had initiated sex in the three years prior to the survey: in-school youth were roughly half as likely to have initiated sex as were out-of-school youth. As a result, multivariate analysis controlled for age, socioeconomic status, school status, educational attainment, religion, and whether respondents lived with at least one parent.[12,13]

Outcomes

- Behaviors—
  - **Increased communication with parents and other adults about sexual health**—Between baseline and follow-up, the proportion of youth in the intervention site reporting conversations with a parent about sexual health topics rose significantly among females from 26 to 37 percent. At the same time, *fewer* female youth in the comparison site reported conversations with parents about sex (down from 39 to 19 percent). This comparative change in parent-child communication about sexual health issues was statistically significant for female youth. Youth's conversations with adults other than parents increased significantly among both male and female youth in the intervention community from 39 to 47 percent of male youth and from 49 to 57 of female youth while proportions dropped among youth in the comparison community (from 39 to 31 percent of males and from 54 to 26 percent of females).[12]
  - **Delayed initiation of sexual intercourse**—Between 1997 and 2001, the proportion of male youth in the intervention site who had initiated sex dropped from 34 to 24 percent while it rose from 30 to 33 percent among males in the comparison site. The difference in delay was statistically significant among male youth in the intervention site, versus male youth in the comparison site.[12,13]
  - **Increased abstinence among sexually experienced youth**—The proportion of sexually experienced youth in the intervention site who reported abstinence from sex in the previous six months rose from 40 to 53 percent while dropping from 39 to 26 percent among females in the comparison site. At follow-up, sexually experienced female youth from the intervention site were three times more likely to abstain from sex as females from the comparison site, a finding that was statistically significant.[12,13]
  - **Reduced number of sex partners**—The proportion of sexually experienced youth reporting three or more sexual partners in the last three years dropped among females in the intervention site from 14 to five percent while rising from 13 to 30 percent among females in the comparison site. By follow-up, female youth in the intervention site were 90 percent less likely than female youth from the comparison site to have had multiple sexual partners, a statistically significant outcome.[12,13]

- **Increased use of condoms**—The proportion of sexually experienced youth from the intervention site reporting condom use at last sex rose among females from 22 to 32 percent and among males from 39 to 45 percent. At the same time, condom use at last sex dropped among youth at the comparison site: among females from 28 to 25 percent and among males from 41 to 16 percent. The difference in condom use was statistically significant for male youth.[12,13]

For More Information, Contact

- **Population Council**, P.O. Box 17643-00500, Enterprise Road, Nairobi, Kenya; (254-2) 2713480/1/2/3; fax (254-2) 2713479

or

- **Family Planning Association of Kenya**, P. O. Box 30581, Nairobi, Kenya; 604296; e-mail info@fpak.org

Promoting Sexual Responsibility among Youth (Zimbabwe)

Program Components

- Comprehensive sexual health campaign to encourage 1) delayed initiation of sex and 2) reductions in sexual risk-taking behaviors among sexually experienced youth
- Multimedia campaign lasting six months, directed at young people ages 10 to 24 and at adults who control youth's access to reproductive health services
- Three slogans appearing in all materials and activities, in English and native languages: "Have self-control," "Value your body," and "Respect yourself"
- Involvement of youth in designing materials and messages
- Involvement of communities in planning, launching, and executing activities
- Posters, leaflets, newsletter, radio program (*Youth for Real*), and a hotline
- Theater troupes performing interactive dramas on sexual health issues
- Peer educators, ages 18 to 24, speaking to groups of youth and adults
- Training of peer educators
- Training of health providers in making services youth-friendly
- Referral of youth to health care providers trained in youth-friendly services

For Use With

- Urban and rural youth, ages 10 to 24
- Youth living in small town centers in rural areas

Evaluation Methodology

- Quasi-experimental evaluation design with youth in five intervention and two comparison sites
- Baseline survey at three months prior to the campaign's launch and follow-up one year later, three-months after the campaign's end
- Baseline survey among 1,426 randomly selected youth at intervention and comparison sites; follow-up survey among 1,400 randomly selected youth at intervention and comparison sites
- A survey of youth ages 10 to 24 (n=700) living in six cities outside the campaign area, to assess the reach of *Youth for Real*

Evaluation Findings

- Increased communication with parents and others about sexual health
- Delayed initiation of sexual intercourse
- Increased abstinence among sexually experienced youth—females
- Reduced number of sex partners
- Increased use of contraception
- Increased use of condoms
- Increased use of health care services

Program Description

This six-month long, multimedia campaign is based on the "steps to behavior change" theory. The theory's framework describes five stages of behavior change—knowledge, approval, intention, practice, and advocacy. The campaign focuses on the two earliest stages, when people learn key information and skills, then discuss what they have learned with others, finding support for behavior change among family, peers, and community. The theory posits that outside approval is critical because 1) young people's sexual decisions are often strongly influenced by friends, family, and social norms, and 2) youth's access to sexual health information and services is controlled by adults, including parents, service providers, and public policy leaders. The campaign focuses on youth ages 10 to 24 with the objectives of encouraging 1) abstinence among youth who have not yet initiated sex and 2) sexual risk-reduction among sexually experienced youth.[14]

The objectives of the campaign are to 1) increase youth's reproductive and sexual health knowledge; 2) heighten approval of safer sexual behavior and of using family planning services; and 3) encourage youth to adopt safer sexual behaviors and attend health services facilities. To achieve these objectives, the campaign has three slogans that appear in all its materials and activities: *Have self-control*, *Value your body*, and *Respect yourself*. The campaign's major components include 1) use of radio, especially 26 episodes of

Youth for Real, broadcast nationwide, 2) a combination of information and advice with music and mini-dramas, and 3) phone-in opportunities for youth to speak with a peer educator and/or a doctor. Other components include posters, leaflets, a hotline, and peer education. Community-based theatre troupes perform interactive dramas focused on sexual health issues at schools, churches, and town centers. At the beginning of the campaign, local committees garner substantial support from local businesses and plan elaborate launch activities—including performances by popular musicians, dramas, parades, speeches, and soccer games.[14]

The campaign aims at building support in the community and within the health care system for reproductive health information and services for youth. As such, it empowers local committees (including representatives from local government, religious organizations, and education, health, and business groups) to design activities to reach family, friends, and teachers. It also trains providers to overcome entrenched biases against offering sexual health information and services to young people and involves health care providers in campaign preparations and launch. Finally, peer educators, drama groups, and print materials refer young people to youth-friendly reproductive health clinics.[14]

Evaluation Methodology

The evaluation used a quasi-experimental design, with treatment and comparison conditions. The campaign ran at five sites—one in an urban area (Mutare) and four in growth points (described as small towns at the center of rural districts). Youth in two other sites (one city and one growth point) comprised the comparison group. Youth in the comparison sites were not targeted for the campaign; nevertheless, these youth were exposed to some elements of the campaign, such as the nationally broadcast radio program, advertisements for the hotline on *Youth for Real*, and other non-campaign materials such as posters, condom marketing, peer education, and family life education in schools.[14]

The baseline survey was conducted among 1,426 randomly selected respondents in the intervention and comparison sites three months before the campaign was launched. Follow-up occurred among 1,400 randomly selected respondents one year later, three months after the major campaign activities ended. A demographic and health survey sampling frame was used to select houses randomly within a 30-kilometer radius of the towns' center. Within each household, one youth ages 10 to 24, who was also the same gender as the interviewer, was selected for interview. Before conducting the interview, the interviewer explained the reason for the research, described the content of the questionnaire, and asked permission of the parent or guardian of any potential respondent under age 15. In addition, 700 youth ages 10 to 24, living in six cities outside of the campaign area, were surveyed to determine the reach of *Youth for Real* throughout Zimbabwe.[14]

Almost equal numbers of young men and young women were interviewed in intervention and comparison sites at baseline and follow-up. Roughly 20 to 30 percent of respondents at both baseline and follow-up were ages 10 to 14; about 50 percent were ages 15 to 19; and the remainder were ages 20 to 24. Roughly 90 percent were single and about 70 percent had never had sexual intercourse. At baseline, respondents in intervention sites tended to be slightly younger and less well educated and were less likely to be married or to report sexual experience than those in comparison sites. At follow-up, respondents in intervention sites tended to be somewhat older and better educated and somewhat more likely to be sexually experienced than comparison youth were at baseline. The rural-urban composition of the intervention and comparison samples also differed: four of five respondents from intervention sites lived in rural areas, whereas half of the comparison respondents lived in rural areas. Given these differences, the researchers performed multivariate logistic regression analyses to control for age, gender, education, sexual experience, marital status, and urban or rural residence.[14]

The strategy of involving local committees and training health care providers achieved high levels of parent-child discussions about sensitive sexual health topics and increased the number of youth seeking reproductive health services, especially at youth-friendly health centers. Community support also meant continuance of some components, including training and support for peer educators and support for youth-friendly health centers and the hotline.[14]

Outcomes

- Behaviors—
  - **Increased communication about sexual health issues**—Analysis revealed that, during and immediately after the campaign, respondents in intervention sites were significantly more likely than those in comparison sites to discuss sexual health issues with someone. The proportion of youth in intervention sites that discussed sexual health issues with:
    - Anyone was 80 percent versus 20 percent of youth from comparison sites (OR=5.6)
    - Friends, 72 percent versus 33 percent of youth from comparison sites (OR=5.7)
    - Siblings, 49 percent versus 20 percent of youth from comparison sites (OR=3.8)
    - Parents, 44 percent versus 15 percent of youth from comparison sites (OR=4.3)
    - Teachers, 34 percent versus 14 percent of youth from comparison sites (OR=3.5)
    - Partner, 28 percent versus 13 percent of youth from comparison sites (OR=3.8).[14]
  - **Delayed initiation of sexual intercourse**—The proportion of respondents in the intervention site who reported continuing to delay the initiation of sex was 32 percent versus 22 percent in the comparison area (OR=1.2), a statistically significant finding.[14]

- **Reduced sexual risk-taking among sexually experienced youth—**The odds of sexually experienced intervention site respondents having taken any action in regard to safer sexual behavior was 8.8 (41 percent of intervention respondents versus 10 percent of comparison youth). Specifics included stopping having sex, sticking to one partner, starting to use condoms, or asking partners to use condoms. Details follow.
- **Increased abstinence among sexually experienced youth—**The odds that respondents in intervention sites reported saying no to sex were 2.5 times greater than the odds of youth in comparison sites saying no to sex; 53 percent of intervention site respondents reported saying no to sex, versus 32 in comparison sites. According to multiple regression analysis, young women were more likely than young men to report having said no to sex. This may reflect a positive change in women's belief that they have the right to refuse unwanted sex. Youth at the intervention sites were also significantly more likely to report avoiding "sugar daddies" than were youth at comparison sites (11 versus nine percent, respectively; OR=1.1).[14]
- **Reduced number of sex partners—**The campaign's biggest effect, by far, was to convince sexually experienced youth to reduce the number of their sexual partners. At follow-up, youth at intervention sites were significantly more likely to report sticking to one partner than were youth at comparison sites (20 versus two percent, respectively; OR=26.1).[14]
- **Increased use of contraception—**At follow-up, the proportion of sexually experienced youth at the intervention sites who reported using a modern method of contraception at most recent sex rose significantly (from 56 percent at baseline to 67 percent at follow-up). Use of modern methods did not change significantly among youth in the comparison areas.[14]
- **Increased use of condoms—**Sexually experienced youth at the intervention sites were significantly more likely to report starting to use condoms than were youth at comparison sites (11 versus two percent, respectively; OR=5.7).[14]
- **Increased use of health care services—**Analysis showed that young people in intervention sites were significantly more likely to visit a health or youth center than youth in comparison sites (34 versus 10 percent; OR=7.6). Notably, the campaign encouraged health center visits by groups historically less likely to seek services—males, single youth, and sexually inexperienced youth.[14]

For More Information, Contact

- **Zimbabwe National Family Planning Council** (ZNFPC), Post Office Box 220, Southerton, Harare, Zimbabwe; Telephone: +263 (4) 620 281/2/3/4/5 or +263 (4) 620 282; Fax**:** +263 (4) 620 280; e-mail znfpc@ecoweb.co.zw

HIV Prevention Education for High School Students (Nigeria)

Program Components

- Comprehensive sexual health education and HIV/STI prevention curriculum, designed to encourage 1) delayed initiation of sex and 2) reductions in sexual risk-taking among sexually experienced youth
- Six sessions, one per week, each lasting two to six hours, conducted over six consecutive weeks
- Experiential activities, including role-plays, debates, songs, and story-telling along with lectures and videos
- Demonstration on the proper use of condoms
- Referral of students for reproductive and sexual health care

For Use With

- Urban youth, ages 13 through 20
- High school youth
- Youth living in poverty

Evaluation Methodology

- Quasi-experimental evaluation using randomized, control design in four urban high schools in an older, poorer, local government area (LGA) of Ibadan, Lagos State, Nigeria
- Random selection of 20 to 25 students from two arms each of senior classes 1, 2, and 3 in each of the four schools
- Baseline and follow-up surveys in January and February 1996 and at six months post-intervention in August 1996
- Baseline survey among 450 randomly selected students from senior classes 1, 2, and 3 in intervention and comparison schools; follow-up survey among 433 students who completed the baseline survey

Evaluation Findings

- Delayed initiation of sexual intercourse
- Reduced number of sex partners
- Increased use of condoms

Program Description

The program is specifically designed to address HIV/STI related knowledge, attitudes, and behaviors among high school youth in urban Nigeria. Based on behavior change theory, the program attempts to change behaviors within the community by helping members to understand that a problem (HIV and AIDS) exists. Through education, the program works to address youth's lack of knowledge, improve sexual health attitudes, and reduce sexual risk-taking behaviors. The comprehensive health education program, developed in conjunction with health education experts from the Department of Preventive & Social Medicine at the University of Ibadan, includes six HIV education sessions, implemented in classrooms by a physician and two experienced teachers. Sessions, each lasting two to six hours, occur once each week during six consecutive weeks.[15]

The program uses experiential activities, including role-plays, stories, songs, debates, and essays, as well as films and more traditional lectures. The program also includes a demonstration on the proper use of condoms. To address the differing needs of students, each class level (1, 2, or 3) receives the program separately. During and after the program's end, the reproductive health educators continue making themselves available to refer requesting students and/or teachers—in a sympathetic and nonjudgmental manner—to appropriate clinical care services.[15]

Evaluation Methodology

High school students in the southeast local government area (LGA) of Ibadan were surveyed on their attitudes, knowledge, and behaviors related to HIV and AIDS and other sexually transmitted infections (STIs). Results indicated that most students (83 percent) knew about the sexual transmission of HIV, but few knew about other transmission routes. Knowledge was higher among older than younger youth. Twenty percent felt that HIV and AIDS was not a medical problem in Nigeria, and 83 percent said they would dislike being around anyone with HIV or AIDS. At the same time, average age for first sex was 15.8 for males and 16.3 for females; 35 percent of surveyed students had ever sex; and 27 percent had sex in the month preceding the survey. Of the sexually experienced students, 68 percent of males and 32 percent of females reported having had multiple sexual partners (mean number=1.76). Among youth who reported sex in the previous month, only 20 percent reported consistent use of condoms. These findings informed the development of a school-based health education curriculum designed to positively affect students' HIV/STI knowledge, attitudes, and behaviors. At the same time, findings constituted the baseline survey for the intervention that followed.[15]

Eleven mixed-sex public schools in the target LGA were divided into two groups, based on geographic location. Two adjacent schools in one group were chosen as the intervention schools; two comparison schools were randomly chosen from the other group. From senior high classes 1, 2, and 3 in each school, two arms (each consisting of 20 to 25 students) were randomly chosen to participate in the study of the intervention's effectiveness. All students in the selected arms participated in the study.[15]

The baseline questionnaire was administered in Yoruba, the native language of the target youth (total n=450; n=233 students in intervention schools; n=217 students in comparison schools). Evaluation was carried out six months after the intervention, using an adjusted version of the pretest (n=433; n=223 intervention youth; n=210 comparison youth; 17 students were lost to follow-up). At baseline, the intervention and comparison groups were matched, with no statistical differences in their mean age, gender, class, religion, or parental background. For example, mean age of the intervention students was 17.6 years and of the comparison students, 17.8 years. Females constituted 53 percent of the intervention students and 57 percent of the comparisons. Ninety-eight and 99.5 percent, respectively, were Yoruba; 55 and 51 percent, respectively, were Muslim. Thirty-three percent of the intervention students had mothers with no education versus 30 percent of comparison students. There were no significant differences between intervention and comparison students in terms of HIV knowledge and awareness at baseline. Also at baseline, no statistically significant differences existed in the proportion of students who were sexually active: 33 and 39 percent of intervention and comparison youth, respectively, had ever had sexual intercourse. Similarly, among sexually experienced youth the mean age at first sex was 16.2 and 15.9 years, respectively, among intervention and comparison youth, while 53 and 43 percent, respectively, reported use of a condom at most recent sexual intercourse, and 12 and 11 percent, respectively, reported consistent use of condoms. Finally, four percent and two percent, respectively, reported a past medical history of STI.[15]

Outcomes

- **Knowledge—**
  - At six months post-intervention, knowledge about methods of transmission of HIV as well as knowledge of prevention methods had increased significantly more among intervention than comparison students. For example, 95 percent of intervention youth knew that HIV could be transmitted from a pregnant woman to her unborn child, versus 43 percent of comparison youth. Ninety-two percent of intervention youth knew that an HIV-infected person could look completely healthy, versus 41 percent of comparison youth. Ninety-six percent of intervention youth knew that using condoms decreases the risk of HIV transmission, versus 63 percent of comparison youth.[15]
- **Attitudes—**
  - Awareness of HIV and AIDS and attitudes towards those living with HIV or AIDS were significantly improved among intervention youth, versus comparison youth at six months post-intervention. For example, 93 percent of intervention youth felt that HIV was a problem in Nigeria, versus 57 percent of comparison youth. Among intervention youth, 79 percent felt they could touch and care for someone living with AIDS, versus 14 percent of comparison youth.[15]
- **Behaviors—**
  - **Delayed initiation of sexual intercourse—**Evaluation found a statistically significant difference in the proportions of students who reported never having had sexual intercourse. At six-month follow-up, 76 percent of intervention students reported no sexual experience, versus 62 percent of comparison students. At the same time, the change from baseline to follow-up was substantial among intervention youth (from 67 to 76 percent) while remaining virtually unchanged among comparison youth (from 61 to 62 percent).[15]
  - **Reduced number of sex partners—**At six-month follow-up, there was a statistically significant difference in the mean number of sexual partners reported by the sexually experienced intervention youth versus sexually experienced comparisons (1.060 and 1.312, respectively).[15]
  - **Increased use of condoms—**A higher proportion of sexually experienced intervention students than comparisons reported condom use at last intercourse (54 versus 43 percent). Similarly, 20 percent of the sexually experienced intervention students reported *consistent* condom use versus 13 percent of the comparison students.[15]

Note: Evaluation also found that the recent history of STIs decreased among intervention youth (from four percent at baseline to two percent at six-month follow-up) while rising among comparison youth (from two to three percent). This finding was not statistically significant. Evaluation also found a greater reduction in the proportion of intervention students who engaged in sexual intercourse in the month preceding the post-test survey versus comparison students even though the proportions decreased in both groups between baseline and follow-up. This change was also not statistically significant. Nevertheless, evaluators assessed these changes—along with the increased condom use and reduced number of sex partners (reported above)—as indicating a substantial and significant improvement in safer sex behaviors among intervention students, versus comparison students.[15]

For More Information, Contact

- **Department of Preventive and Social Medicine, College of Medicine, University of Ibadan**, PMB 5017 GPO, Ibadan, Nigeria

School Health Education (Uganda)

Program Components

- Comprehensive health and sexuality education program with messages to encourage 1) delay in the initiation of sex and 2) reductions in sexual risk-taking behaviors among sexually experienced youth
- Peer education related to HIV and AIDS, sexuality, and health
- School health clubs sponsoring health-related competitions in plays, essays, poetry, and songs
- Teacher training to improve tutors' and science teachers' skills as health educators
- Students' question box, with senior tutors answering students' questions
- Community and parents' involvement in forums to discuss health and sex education issues
- School supervisors' monitoring the health education program

For Use With

- Upper primary school students, ages 10 to 18
- In-school youth
- Rural and urban youth

Evaluation Methodology

- Quasi-experimental design with intervention and comparison groups, average ages 13 to 14, in two counties and in Soroti, a municipality, in northeastern Uganda
- Baseline survey (March 1994) of 400 randomly selected youth in the 1994 P-7 class; post intervention survey (November 1996) of 400 randomly selected youth in the 1996 P-7 class
- Data from youth in P-7 classes in intervention and comparison schools

Evaluation Findings

- Increased communication about sexual health
- Delayed initiation of sexual intercourse
- Reduced number of sex partners

Program Description

This school health and sexuality education program is based on social learning theory. The program intends to change basic attitudes about sexual intercourse and to encourage safer sexual behaviors, especially delays in the initiation of sexual intercourse and, among sexually experienced youth, reductions in the number of their sex partners. The program relies on existing structures, including a full-time health educator and current teaching and health professionals. A local steering committee oversees the involvement and training of local leaders and heads of schools as well as of parents, teachers, and senior tutors. During each school term, supportive supervisors visit each school to monitor the implementation of health education activities. These activities include:

- Implementing the school health curriculum
- Involving youth in forming school health clubs that sponsor competitions in plays, essays, poetry, and song on health issues
- Training peer educators and implementing one-on-one peer education on health issues
- Convening regular meetings of parents, teachers, and community leaders to discuss sexual health issues
- Weekly training of senior tutors and science teachers to improve their skills as health educators
- Senior tutors answering students' questions and providing advice to students
- Training students in local teachers' colleges to implement the school health curriculum.[16]

Evaluation Methodology

The African Medical and Research Foundation, in conjunction with the Soroti School District Administration, implemented this intensified school health education program in primary schools in a rural county (Kalaki) and the municipality of Soroti in northeastern Uganda between 1994 and 1996. Kaberamaido country was the comparison area, where students were exposed to the standard school health and HIV/AIDS education program of Uganda. A survey of youth regarding their sexual health knowledge, attitudes, and behaviors informed the design of the program, provided baseline data for evaluation, and offered a means of informing local leaders and students about the magnitude of risk for HIV faced by students in this area of Uganda.[16]

Researchers collected baseline data during February and March, 1994, from 38 primary schools randomly selected from all the primary schools in Kabermaido sub-district, which includes Kalaki and Kaberamaido counties and the municipality of Soroti. Ten students, five boys and five girls, were selected randomly from the P7 class, using a serial counting method, in each of 12 schools in Kaberamaido county, 15 schools in Kalaki county, and 11 schools in Soroti. In two of Soroti's largest schools, 20 students (10 male and 10 female) were randomly selected to participate in the baseline survey (total n=400; n=287 youth from intervention schools; n=113 youth from comparison schools). Students answered the self-administered, anonymous questionnaire in circumstances designed to ensure confidentiality. The same procedure was used in November 1996 to collect post-intervention data from students in the 1996 P-7 class. Questionnaires were in English, the language of instruction in upper primary schools in Uganda.[16]

At baseline, the mean age of surveyed youth from the intervention schools was 14.0, that of youth from comparison schools was 13.8. The age range of youth from intervention schools was 10 through 18; the age range of youth from comparison schools was nine through 22. Of the 287 youth from intervention schools, 147 were male and 140 were female. Of the 113 youth from comparison schools, 54 were male and 59 were female. There were no significant differences in religious affiliation. A larger proportion of youth from intervention schools lived with someone other than parents versus youth from comparison schools (20 percent versus four percent), but there was no statistically significant difference in self-reported sexual activity between those who lived with one or both biological parents and those who lived with others. A statistically significant difference at baseline occurred between intervention and comparison schools in students' reports of having had sex. In 1994, the youth from intervention schools were 3.7 times more likely to be sexually active than those from comparison schools (43 versus 26 percent, respectively). The youth from rural intervention schools were also 3.7 times more likely to have had sex than youth from comparison schools.[16]

Outcomes

- Behaviors—
  - **Increased communication about sexual health**—The proportion of youth from intervention schools who discussed sexual health with teachers, as opposed to listening to lectures, increased significantly from nine to 44 percent, while among youth at comparison schools, the proportion rose from 12 to 21 percent. In the intervention schools, the proportion of students who discussed sexual health matters with schoolmates increased from 30 percent at baseline to 50 percent at follow-up while the change among youth at comparison schools was much smaller (29 percent at pretest; 36 percent at follow-up).[16]
  - **Delayed initiation of sexual intercourse**—Between 1994 and 1996, the proportion of students at intervention schools who reported having ever had sex fell significantly from 43 to 11 percent. At the same time, the proportion of youth from comparison schools who reported ever having had sex remained virtually unchanged (26 percent in 1994 versus 27 percent in 1996).[16]
  - **Reduced number of sex partners**—Among sexually experienced youth in 1994, youth at intervention schools reported an average of 2.2 sex partners; by 1996, this number had fallen to an average of 1.4 sex partners. By contrast, reported numbers of sex partners among sexually experienced youth in comparison schools were 2.1 in 1994 and 2.0 in 1996. The difference was statistically significant.[16,17]

For More Information, Contact

- **African Medical and Research Foundation** (AMREF), P.O. Box 10663, Plot 17, Nakasero Road, Kampala, Uganda; www.amref.org

Family AIDS Education & Prevention through Imams (Uganda)

Program Components

- Comprehensive HIV prevention program to increase knowledge and reduce sexual risk-taking behaviors
- Muslim religious leaders focusing on community-based HIV and AIDS prevention
- Curriculum on HIV prevention, developed by Uganda's ministry of health and made culturally appropriate for Muslims by Islamic Medical Association of Uganda (IMAU)
- Three-day training workshops for imams (mosque leaders) and selected community volunteers, called Family AIDS Workers (FAWs)
- Follow-up training of imams and FAWs
- HIV prevention education of the community's households by the FAWs
- Regular visits by the imams to the households
- Periodic on-site checks and group discussions with imams and FAWs by trainers from IMAU

For Use With

- Male and female Muslim youth
- Muslim families in rural communities
- Muslim communities in rural trading centers

Evaluation Methodology

- Quasi-experimental evaluation over two years, using experimental and comparison groups in two districts with large Muslim populations
- Baseline surveys of members of randomly chosen Muslim families living near randomly selected mosques in the experimental and comparison areas (n=1,907); follow-up survey of members of randomly chosen Muslim families living near randomly selected mosques in the experimental and comparison areas (n=1,826); data from focus group discussions and key informant interviews

Evaluation Findings

- Reduced number of sex partners
- Increased use of condoms—males

Program Description

This program provides culturally appropriate, HIV prevention education to Muslim families living in rural communities and trading centers in Uganda. The program, *Family AIDS Education & Prevention through Imams*, is based on the assumption that the imam, the mosque leader, is the usual teacher of family values and behavior, including those related to sexuality. The Islamic Medical Association of Uganda (IMAU) has adapted a curriculum originally developed by Uganda's Ministry of Health. The adapted curriculum provides information on a variety of topics in relation to HIV and AIDS, including values clarification, basic facts, risk perceptions, prevention information, safer sex, gender, and adolescence. The curriculum also includes information addressing practices common in Uganda's Muslim communities—practices such as 1) circumcision and 2) ablution of the dead. Each topic is tied to specific objectives related to HIV risk reduction.[18]

IMAU teaches top Muslim leaders about HIV and AIDS among Muslims within Uganda and enlists their support for an intensive HIV and AIDS prevention effort. These religious leaders then select imams and community volunteers. IMAU trainers conduct three-day workshops for imams and their lay assistants, called Family AIDS Workers or FAWs, using guided discussion to work through the culturally appropriate curriculum. A year later, IMAU trainers conduct a second set of three-day workshops at which imams and FAWs discuss their experiences and learn additional information. After each set of workshops, the imams and FAWs train families in their communities, using the same curriculum and a similar teaching method. Each imam supervises five FAWs. The imam visits a household, introduces the FAW, and makes periodic follow-up visits. Each FAW repeatedly visits and educates a few households. In this way, families learn one or two new topics each month and revisit topics and issues previously discussed.* In addition, imams discuss HIV and AIDS during religious gatherings. IMAU trainers periodically visit the imams and FAWs, assisting them with issues that have arisen and giving imams and FAWs a chance to discuss their progress.[18]

*FAWs receive two hens, to generate income to replace earnings lost during their voluntary work in HIV prevention education. Imams receive a bicycle to facilitate their visiting individual families.

Evaluation Methodology

A cross-sectional baseline survey—in March, 1992, of respondents (n=1,907) living around randomly selected mosques—identified topics for intensive education among Muslim families in northeastern Uganda. Such topics included risks of: 1) mother-to-child HIV transmission (at birth or through breastfeeding); 2) using the same razor to circumcise many male infants; and 3) ritually washing the dead (ablution). The baseline survey provided 1) the needs assessment for adapting the HIV/AIDS educational program and 2) baseline data for later comparison with follow-up data.

Imams at about 200 mosques in two districts—Mpigi and Iganga—with large populations of Muslims were chosen for the pilot intervention. Twenty-three IMAU trainers delivered the HIV prevention curriculum to imams and their lay assistants, the FAWs, at three-day workshops. Outcome measures included correct knowledge of HIV transmission and prevention, use of condoms, number of sexual partners, and risk perception of practices such as circumcision and ablution of the dead. Only half of Iganga district received the program. The other half of Iganga district provided a comparison site, enabling evaluators to assess the impact of the program itself, apart from other, nationwide efforts to control and prevent HIV and AIDS.[18]

At follow-up, the questionnaire included the same questions as the baseline survey, with some questions added or modified. For example, due to extensive polygamy in the communities, questions about number of sexual partners needed revising to obtain more accurate and informative answers about extra-marital sexual partners. At both baseline and follow-up, 21 mosques were selected from each district, with 12 selected at random from among rural mosques and nine selected at random from among mosques in trading centers. Individual respondents (n=1,826) were then selected as follows. One index household, of which the head was Muslim, was randomly selected at each mosque. Fifteen households in concentric distribution around the index household and in which the head was Muslim, were then enrolled into the survey. Members of the household were eligible for the survey if they were 15 years or older and if they had been resident in the household for the past 12 months. Some respondents may have been surveyed at both baseline and follow-up, but there was no effort to resurvey the same respondents.[18]

At baseline and follow-up, respectively, 63 and 68 percent of respondents were female; 40 and 47 percent were ages 15 to 24; 93 and 97 percent were Muslim; and 52 and 61 percent had a primary education. Unexposed respondents were less likely to be educated, but analysis showed educational level to have no effect on outcomes. Baseline data for all three areas—intervention and comparison—were combined to provide uniform baseline values.[18]

In addition, evaluators obtained qualitative data through focus group discussions and interviews with key informants. Nine focus group discussions were held: three each in Mpigi, the intervention area of Iganga, and the non-intervention area of Iganga. In each location, the three focus group discussions consisted of: 1) adult married males, ages 25 to 40; 2) adult married females, ages 20 to 29; and 3) unmarried females, ages 15 to 19. All of these participants (n=75) were from rural areas. Focus groups, with gender-specific moderators, used a story and asked questions about the story to guide discussion. Evaluators also interviewed 25 key informants, including FAWs, imams, imams' assistants, county sheiks, and district kadhis. They were asked how the community responded to the project, the strengths and weaknesses of the project, and the community's response to an anticipated condom availability and sales program.[18]

Outcomes

- **Knowledge—**
  - Between baseline and follow-up, a statistically significant proportion of respondents in the intervention areas showed increases in correct knowledge of:
    - Sexual transmission of HIV (from 86 to 97 percent); among respondents from the comparison area, proportions rose only from 86 to 90 percent.[18]
    - Mother-to-child transmission (from one to 10 percent); among respondents from the comparison area, proportions rose only from one to two percent.[18]
    - Risk of non-sterile, skin-piercing instruments (from 36 to 80 percent); among respondents in the comparison area, proportions rose only from 36 to 51 percent.[18]
    - Condoms as protective against HIV (64 to 82 percent); among respondents from the comparison area, proportions dropped from 64 to 60 percent.[18]
- **Attitudes—**
  - A statistically significant proportion of respondents from the intervention areas showed increased perception of risks posed by traditional Muslim practices:
    - Proportions who viewed as risky the circumcising of several male infants with the same razor rose from 45 to 78 percent while remaining unchanged at 45 percent among those from the comparison area.[18]
    - Proportions of respondents from the intervention areas who perceived risk from ablution of the dead rose from 27 to 60 percent while dropping from 27 to 24 percent among those from the comparison area.[18]

- Behaviors—
  - **Reduced number of sex partners**—Between baseline and follow-up, a statistically significant proportion of responding youth from the intervention areas reported a reduced number of sex partners versus responding youth from comparison areas.
    - Among males ages 15 to 24 from the intervention areas, the proportion reporting two or more partners fell from 45 percent at baseline to 32 percent at follow-up while rising from 45 to 59 percent among male youth from the comparison area.
    - Among females ages 15 to 24 from the intervention areas, the proportion reporting two or more partners fell from 13 percent at baseline to six percent at follow-up while rising from 13 to 16 percent among female youth from the comparison area.[18]
  - **Increased use of condoms**—Instruction about the importance of using condoms was included in the program only in the second year, when imams acknowledged that condoms were an HIV prevention tool that could not be ignored. Reports of ever use rose from 15 percent at baseline to 25 percent at follow-up among males from the intervention areas; reports of ever use of condoms also rose among males from the comparison areas (from 15 to 21 percent). The comparative rise, though slight, was statistically significant for males from the intervention areas.[18]

For More Information, Contact

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Entre Nous Jeunes Peer Education (in Cameroon)

Program Components

- Comprehensive sexual health peer education program to encourage reductions among sexually experienced youth in 1) sexual risk-taking behaviors and 2) incidence of STIs and unintended pregnancy
- Training of peer educators on sexual health and on facilitation skills*
- Peer educators working with youth in discussion groups, one-on-one meetings, and health and sports association gatherings
- Peer educators receiving reimbursement for travel expenses and incentives
- Peer educators distributing IEC materials, including comic strips and posters
- Referral of youth for reproductive and sexual health care

For Use With

- Youth ages 10 to 25
- Urban youth
- In- and out-of-school youth

Evaluation Methodology

- Quasi-experimental evaluation design with youth in intervention (Nkongsamba) and comparison (Mbalmayo) communities
- Baseline data collected in November and December 1997 from randomly selected youth in the intervention community (n=402) and in the comparison community (n=400); follow-up data collected in April 1999 from randomly selected youth in the intervention community (n=405) and in the comparison community (n=413)

Evaluation Findings

- Increased use of contraception
- Increased use of condoms

Program Description

Entre Nous Jeunes Peer Education program is a peer-based adolescent reproductive health intervention, designed to increase contraceptive use and to reduce the prevalence of unintended pregnancy and STIs, including HIV, among sexually active adolescents. The program relies on large numbers of existing, community-based, youth service clubs and youth associations (sports and religious). Program planners recruit youth to be volunteer peer educators and test them for motivation and commitment. Those chosen receive training, lasting one week, in facilitating group discussions as well as in reproductive anatomy, abstinence, contraceptive methods, and skills to negotiate condom use. Every three months, peer educators receive additional training to reinforce their skills and knowledge and to resolve outstanding problems or concerns.[19]

Peer educators work within their own community to educate their peers and to refer them, when necessary, to reproductive and sexual health care. Peer educators arrange discussion groups and meet with their peers in health and sports associations and one-on-one. They also distribute materials including calendars, comic strips with information about contraception and sexual health, and posters. Peer educators receive travel expenses as well as special promotional materials, including tee shirts, shorts, baseball caps, bags, and calendars.[19]

Evaluation Methodology

Between November and December 1997, evaluators conducted a baseline survey among youth in the intervention community of Nkongsamba and in the comparison community of Mbalmayo. A follow-up survey was conducted 17 months later (April 1999) among youth in the two communities. The cities were demographically similar: the intervention city had a population of about 102,000 and the comparison city, about 110,000. The proportion of the population that was age zero to 24 was similar: 53 and 50 percent, respectively. Both cities had imbalanced sex ratios, as young men in both communities typically left home in search of a better life in Douala and Yaoundé. The Christian religion predominated in both cities. Both cities were primarily agricultural and each supported small factories (coffee roasting and palm-oil production in Nkongsamba and woodworking in Mbalmayo).[19]

At baseline, evaluators used a multi-stage sampling approach of clusters, blocks, and households to randomly select a household sample of youth ages 10 to 25. Among eligible respondents in each household, one youth was randomly selected. At baseline, 402 youth in the intervention community were surveyed and 400 youth in the comparison community. At follow-up, the survey was restricted to youth ages 12 through 25; 405 youth from the intervention community were surveyed as were 413 from the comparison community.

*Forty-two were trained over two years.

The change between baseline and follow-up in the ages of those surveyed came primarily from parents' resistance to the interviewing of children ages 10 through 14.[19]

At baseline, females in the comparison community were more likely to be currently in school than were females in the intervention community (77 versus 56 percent). Males in the comparison community were also significantly more likely to be in school than were males in the intervention community (66 versus 52 percent). Males in the intervention community were significantly more likely to report no religious affiliation than were males in the comparison community (19 versus nine percent, respectively). Males in the intervention community were significantly more educated than males in the comparison community (proportions with no education were two percent and seven percent, respectively; proportions with secondary education or more were 87 percent and 82 percent, respectively). Males in the intervention community were also significantly more likely to have never married than were males in the comparison community (97 and 90 percent, respectively). At baseline, there were no statistically significant differences between youth in intervention and comparison communities for current contraceptive method use or for condom use at most recent sex.[19]

At follow-up, both male and female youth in the intervention community were younger than intervention community adolescents at baseline. For example, at baseline 19 percent of females and 14 percent of males were under age 15; at follow-up, 31 percent of females and 27 percent of males were under age 15. In keeping with this finding, youth from the intervention community at follow-up were also less educated and more likely to be in school than youth from the intervention community at baseline. In the comparison community, the only changes were for females; they were significantly more likely to be currently in school and never married at baseline compared to follow-up. Because the evaluation did not control for age, findings must be viewed cautiously that, at follow-up, youth in the intervention community were statistically less likely to have ever had sex.[19]

During the two-year intervention, peer educators organized 353 discussion group sessions, attended by about 12,000 youth. Peer educators also had personal contact with over 5,000 adolescents in the intervention community.[19]

Outcomes

- **Knowledge—**

  At follow-up, youth in the intervention community were significantly more likely than youth from the comparison community to know females' symptoms of STIs (odds ratio=1.16). Controlling for contact with a peer educator indicated that such contact was significantly associated with knowledge of female STI symptoms among youth in the intervention community relative to youth in the comparison community (OR=0.87). The intervention had no significant effect on knowledge of symptoms of STIs in males.[19]

- **Behaviors—**

  - **Increased use of contraception—**At follow-up, sexually experienced youth in the intervention community were significantly more likely to report use of modern contraceptives than were youth in the comparison community (OR=0.53). Contact with peer educators was separately analyzed, and sexually experienced youth in the intervention community who had individual contact with a peer educator were significantly more likely to report current use of modern contraceptives than were youth from the comparison community (OR=0.92). Further analysis showed that, in the absence of the peer education program, current use of modern methods of contraception among youth in the intervention community would have been 21 percent lower.[19]
  - **Increased use of condoms—**At follow-up, youth from the intervention community who had an encounter with a peer educator were significantly more likely to be current users of condoms than were youth from the comparison community (OR=2.07). The finding was also significant for in-school youth (OR=1.13) and for in-school youth who had contact with a peer educator (OR=1.09). At the same time, changes in reported condom use at most recent sex, while not statistically significant, were considerable (baseline OR = -0.23; follow-up OR=0.02). Between baseline and follow-up by contrast, youth in the comparison community reported no change in condom use at most recent sex. Further analysis showed that, in the absence of the peer education program, condom use at most recent sex would have been 53 percent lower among youth in the intervention community.[19]

Note: Evaluation found that youth in the intervention community were much less likely to have initiated sex at follow-up than were youth in the comparison community; 44 percent of females and 40 percent of males in the intervention community had never had sex versus 32 percent of females and 23 percent of males in the comparison community. However, since the evaluation did not control for demographic differences in the two samples at follow-up, evaluators said that "attributing these differences to the program is difficult, although they are suggestive of positive impacts."[19]

For More Information, Contact

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  or

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Sexual Health Information and Services for Youth (China)

Program Components

- Comprehensive sexual health program for unmarried youth, including information about sexual risk reduction, abstinence, and use of condoms and other contraception
- Community-based sexual health counseling and contraceptive services at a youth health counseling center
- Sex education through youth-focused pamphlets and lectures
- Group activities, including interactive discussion, on sexual health issues
- Contraceptives and condoms made available free of charge to young people
- Sexual health videos, shown at local cinemas prior to popular movies
- Training for family planning providers in provision of youth-friendly services
- Meetings of community leaders and parents

For Use With

- Unmarried youth, ages 15 to 24
- Urban youth
- In-school and out-of-school youth

Evaluation Methodology

- Quasi-experimental evaluation design in two towns in Songjiang district, Shanghai, among unmarried youth ages 15 through 24
- Baseline survey among youth in intervention (n=1,220) and comparison (n=1,007) towns; follow-up survey 20 months later among youth in intervention (n=1,148) and comparison (n=894) towns

Evaluation Findings

- Increased partner communication about use of contraception—males
- Increased use of contraception
- Increased use of condoms

Description

The program is designed to increase the sexual health information and services available to unmarried youth (ages 15 through 24). The intervention includes preparatory work with the community to ensure adults' support of sexual health information and services for the community's unmarried youth. The program also includes training for family planning staff on important aspects of youth-friendly services, such as providing counseling, being nonjudgmental and friendly, and assuring adolescents' confidentiality.[20]

For the community's youth, the program distributes educational pamphlets on physiology and reproduction, sexual responsibility (including abstinence), relationships, love, marriage and family, responsible and safer sex, contraception and condom use, and STIs, including HIV. Youth also receive information on where and how to access reproductive health services and contraceptive counseling and supplies. The program offers three educational videos, each of which runs at a local theater prior to the showing of a popular movie. The program also includes a lecture by an educator and 36 short presentations on sexual health issues, followed by discussion sessions for youth who are in relationships or dating. The program includes a youth health counseling center in the town's center, staffed by a trained young counselor. The center offers a reading room with sexual health information. Leaflets and bulletins in the community inform youth of the youth center's counseling and contraceptive services. Finally, the program makes contraceptives—including condoms, oral contraceptives, creams, suppositories, films, and emergency contraceptive pills—available free of charge to the community's youth. These contraceptive methods as well as free pregnancy test kits are available to youth through the network of family planning service providers, the youth health counseling center, and the activity discussion groups.[20]

Evaluation Methodology

In April 2000, two towns in Songjiang district, Shanghai, China, were selected for the intervention study. The towns both had a good network of family planning providers, relatively stable populations where few people moved frequently, and supportive authorities. The two towns were also similar in socioeconomic levels, geographic features, and socio-cultural customs. Nonrandom sampling was used to select the intervention and comparison sites, and all unmarried youth ages 15 through 24 were eligible to participate in the study, irrespective of school status, so long as they had no intention at baseline to marry or to leave the town within one year. No eligible subject refused to participate. A total of 1,220 unmarried youth in the intervention site and 1,007 in the comparison site were interviewed at baseline, including 1,304 out-of-school youth and 923 high school students. At follow-up, 91.7 percent of eligible youth

completed a second survey, including 94 percent from the intervention site (n=1,148) and 89 percent from the comparison site (n=894). Both baseline and follow-up surveys were self-administered under conditions that helped ensure anonymity and privacy to youth.[20]

No significant differences were observed at baseline in school status (in- or out-of-school), leisure activities, family type, type of school, or relationships with classmates in the profiles of young people from the two sites. For example, 57 percent of youth from the intervention site and 60 percent of youth from the comparison site were no longer in school. At the same time, youth from the intervention town tended to be slightly younger (28 and 27 percent, respectively, were ages 15 through 17; and four percent and eight percent, respectively, were ages 22 through 24). Youth from the intervention site were somewhat more likely to be university students or to have a higher educational level (52 percent had graduated from senior high school and eight percent from college) than youth from the comparison site (44 percent, high school, and four percent, college). In both sites, females tended to be younger, more likely to be in school, and more likely to be engaged in administrative occupations than were males.[20]

At baseline, 10 percent of youth from the intervention site had ever had sex (11 percent of males, nine percent of females) versus 12 percent of youth from the comparison site (13 percent of males; 11 percent of females). Sixty-five percent of sexually experienced youth from the intervention site had ever used contraception (68 percent of males and 60 percent of females) versus 75 percent of youth from the comparison site (73 percent of males and 77 percent of females). Thirty-four percent of sexually experienced youth from the intervention site reported regular contraceptive use (33 percent of males and 36 percent of females), versus 44 percent of youth from the comparison site (45 percent of males and 44 percent of females). Seventy-four percent of sexually experienced youth from the intervention site reported having used condoms (76 percent of males and 71 percent of females) versus 71 percent of youth from the comparison site (74 percent of males and 68 percent of females).[20]

The four main indicators measured were 1) ever use of contraceptives, 2) regular use of contraceptives, 3) ever use of condoms, and 4) use of contraceptives at first sex. For youth who reported sexual experience at baseline and/or post-intervention surveys, effects of the intervention on contraceptive use were analyzed using logistic regression, adjusting for factors such as age, gender, educational level, school status, occupation, and family socioeconomic status.[20]

At follow-up, nearly 100 percent of youth in the intervention site reported receiving the educational materials and about 76 percent said they had read most or all of the materials. About 79 percent reported seeing at least one video and 50 percent reported seeing two or more videos. Nearly 33 percent reported participating in one or more discussion groups. Counselors provided 328 counseling sessions to youth. Providers reported distributing the following free products to young people: 4,348 condoms, 137 packages of oral contraceptive pills, 146 packages of films, 107 tubes of cream, 870 suppositories, 106 packages of emergency contraceptive pills, and 93 pregnancy test kits.[20]

Outcomes

- Behaviors—
  - **Increased partner communication about use of contraception**—Between baseline and follow-up, the proportion of youth who reporting making joint decisions (communicating) with a partner about contraception rose significantly among sexually experienced males in the intervention site (50 to 77 percent).[21] Joint decision making dropped somewhat among males in the comparison site (67 to 63 percent). Reports of joint decision making dropped slightly among females in the intervention site (from 86 to 83 percent) and rose somewhat among females in the comparison site (65 to 77 percent).[20]
  - **Increased use of contraception**—Proportions of youth reporting *ever* use and/or *consistent* use of contraception rosesignificantly among sexually experienced youth in the intervention site between baseline and follow-up.
    - At the intervention site, reports of *ever* use of contraception rose significantly among all youth (from 65 to 99 percent), among males (68 to 99 percent), and among females (60 to 99 percent). At the same time, among sexually experienced youth at the comparison site ever contraceptive use rose less (75 to 83 percent). The rise in ever use of contraception was statistically significant for females and for all youth at the intervention site.[20]
    - The proportions reporting *regular* use of contraception rose significantly among sexually experienced youth from the intervention site between baseline and follow-up overall (34 to 89 percent) as well as among males (33 to 88 percent) and females (36 to 90 percent). At the same time among sexually experienced youth at the comparison site regular contraceptive use remained unchanged (44 percent to 45 percent).[20]
  - **Increased use of condoms—**The proportions of sexually experienced youth at the intervention site reporting ever use of condoms rose significantly between baseline and follow-up, overall (74 to 97 percent) as well as among males (76 to 98 percent), and females (71 to 97 percent). In the comparison site, condom use among sexually experienced youth also rose, but not significantly (71 to 81 percent), primarily due to increased use among females (68 to 85 percent) a rise that was not statistically significant.[20]

Note: At follow-up, there were no significant differences between youth in the intervention and comparison sites, overall or by gender, in percentages that had initiated sexual intercourse. Evaluators note that findings on use of contraception and condoms strongly support the idea that a youth-friendly intervention can enhance safer sex behaviors.[20]

For More Information, Contact

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Adolescence: Time of Choices (Chile)

Program Components

- Comprehensive school-based sex education curriculum, including information about abstinence and contraception
- Ongoing involvement of physicians in developing the curriculum, orchestrating educational sessions, and evaluating the program
- Two teachers' manuals: one for working with students and one for working with parents
- Teacher training
- Medical staff working at intervention schools to conduct presentations and to serve as a resource to students, teachers and parents
- Availability of medical staff to students via e-mail or phone regarding questions and medical assistance
- School-based counselors
- Referral of youth to youth-friendly health services

For Use With

- In-school youth, ages 12 to 17
- Urban youth

Evaluation Methodology

- Quasi-experimental case control cohort study among students at two intervention schools and three control schools in the metropolitan area of Santiago, Chile
- Baseline anonymous survey among students in intervention and control schools (n=4,448); follow-up surveys among students in intervention and control schools at 21 and 33 months after the launch of the intervention (n=4,169 and 4,129, respectively)

Evaluation Findings

- Reduced incidence of pregnancy
- Reduced incidence of imposed abortions*
- Delayed initiation of sexual intercourse
- Increased use of contraception—females

Program Description

Adolescence: Time of Choices is a program developed by the Centro de Medicina Reproductiva y Desarrollo Integral del Adolescente (CEMERA) at the Facultad de Medicina de la Universidad de Chile. Adapted from a US-based initiative (the Self Center), the project seeks to provide comprehensive sex education, including information about both abstinence and contraception, for adolescents in school.[21]

The program includes training for teachers, lasting four and a half days as well as two manuals for the teachers: one for working with students and one for working with parents. The curriculum for students consists of 18 sessions, including topics integral to adolescent development, short-term and long-term decision-making, and reproductive and sexual health.** Teachers may repeat sessions they find important to revisit but must cover all of the material. CEMERA also convenes regular meetings to build teachers' capacity on sex education and the curriculum as well as to obtain feedback on the program from teachers and students.[21]

Physicians and other health care professionals from CEMERA lead presentations in the schools and encourage students to contact them, via e-mail or phone, with questions and with medical concerns.[22] CEMERA also provides staff on-site within the schools to serve as a resource for students, teachers, and parents. As part of the program, school counselors are also available to assist students with questions and/or to refer students to youth-friendly reproductive and sexual health services.[21]

Evaluation Methodology

The quasi-experimental case control cohort study was carried out in two intervention schools and three control schools. CEMERA obtained approval from the Ministry of Education, other government entities, the schools, and parents to provide the program in the two intervention sites in Santiago, Chile; comparison schools were also in Santiago. The *Adolescence: Time of Choices* project was carried out over a two-year period, between 1994 and 1996. The baseline anonymous survey was conducted with 4,448 students, including 2,512 in intervention schools and 1,936 in comparison schools. The 21-month follow-up was conducted with 4,169 students,

* Imposed abortions are defined in this study as abortions insisted upon by parents or partners.
** The curriculum for parents consists of five sessions that focus on understanding adolescence and on improving parent-child communication.

2,249 at the intervention schools, and 1,920 at the comparison schools. The 33-month follow-up was conducted with 4,129 students, including 2,192 at the intervention schools and 1,937 at the comparison schools.[21]

At baseline, knowledge of sexuality and reproduction, contraception, and HIV/STIs was similar among females in intervention and comparison schools; knowledge levels were also similar among males in intervention and comparison schools. For example, 66.2 percent of female students in intervention schools correctly answered questions relating to contraception, as did 64.2 percent of females from comparison schools. Among males, the proportions that correctly answered questions about contraception were 65.9 and 63.9, respectively. The proportions of females and males with sexual experience were somewhat higher among youth in comparison schools, especially among males. Among females, 17.3 percent in intervention schools reported ever having had sexual intercourse versus 21.4 percent in comparison schools. Among males, 30.7 percent in intervention schools reported ever having had sexual intercourse, versus 41.7 percent in comparison schools.[21]

Outcomes

- **Knowledge—**
  - Between baseline and 21-month follow-up, knowledge of sexuality, reproduction, contraception and STIs, including HIV, increased significantly more among youth in intervention schools versus those in comparison schools.
    - In the intervention schools knowledge scores on sexuality and reproduction increased from 57 to 72 percent among females and from 51 to 68 percent among males; in comparison schools, knowledge increased from 55 to 62 percent among females and from 47 to 55 percent among males.[21]
    - Knowledge of contraception increased from 66 to 82 percent among females and from 66 to 80 percent among males in the intervention schools; among students in comparison schools, contraceptive knowledge increased from 64 to 73 percent among females and from 64 to 72 percent among males.[21]
    - Knowledge of HIV/STIs increased from 67 to 86 percent among females and from 72 to 88 percent among males in intervention schools; among students in comparison schools, HIV/STI knowledge increased from 62 to 72 percent among females and from 69 to 79 percent among males.[21]
    - For overall sexual health knowledge, knowledge of contraception, and knowledge of HIV/STIs, the differences were statistically significant for both male and female intervention youth ($p<0.05$ for each area, respectively).[21]
- **Behaviors—**
  - **Delayed initiation of sexual intercourse—**
    - Among females, the proportion in the intervention schools reporting sexual initiation rose from 17 percent at baseline to 28 percent at 21-month follow-up and 30 percent at 33-month follow-up. By contrast, reports of sexual initiation among females in comparison schools rose from 21 percent at baseline to 34 percent at 21-month follow-up and 37 percent at 33-month follow-up. At both follow-up points, evaluation found that the program had a statistically significant effect in reducing the rate of sexual initiation among females at intervention schools versus females at comparison schools.[21,22]
    - Among males, the proportion in the intervention schools reporting sexual experience at baseline was 31 percent rising to 36 percent at 21-month follow-up and to 42 percent at 33-month follow-up. By contrast, the reports of sexual experience among males at comparison schools rose from 42 percent at baseline to 45 percent at 21-month follow-up and to 49 percent at 33-month follow-up. At both follow-up points, evaluation found statistically significant lower rates of sexual initiation among male students in the intervention schools than in the comparison schools.[22,22]
  - **Increased use of contraception**—Evaluation found a statistically significant increase in contraceptive use among sexually experienced female students in the intervention schools versus sexually experienced female students from comparison schools. The difference for each class was statistically significant ($p\leq 0.001$).[21]
    - Middle school, class one: a rise in contraceptive use from 14 to 51 percent of sexually experienced intervention females between baseline and 33-month follow-up, versus a rise from 17 to 30 percent of sexually experienced comparison females;[21]
    - Middle school, class two: a rise in contraceptive use from 29 to 56 percent of sexually experienced intervention females between baseline and 33-month follow-up, versus a rise from 24 to 43 percent among sexually experienced comparison females;[21]
    - Middle school, class three: a rise in contraceptive use from 33 to 67 percent of sexually experienced intervention females between baseline and 33-month follow-up, versus a rise from 31 to 45 percent among sexually experienced comparison females;[21] and
    - Middle school, class four: a rise in contraceptive use from 43 to 73 percent of sexually experienced intervention females between baseline and 33-month follow-up, versus a rise from 38 to 56 percent among sexually experienced comparison females.

- **Health Outcomes—**
  - **Reduced incidence of pregnancies—**At follow-up, evaluation found a statistically significant decline by about one-third in the proportion of young women from the intervention schools who became pregnant (down from 15 to 10 percent). In the comparison schools, the decline was not significant. The difference between intervention and comparison schools was also statistically significant ($p<0.05$).[21]
  - **Reduced incidence of imposed abortion—**Among students who became pregnant, evaluation found a decline in imposed abortions in the intervention sites from three to zero percent. By contrast, evaluation found an increase in imposed abortions among pregnant students in the comparison schools (four rising to 14 percent). Thus, there was a significant net decline in the proportion of imposed abortions among young women in the intervention schools and a statistically significant difference in outcomes related to imposed abortion ($p\leq 0.01$).[21]

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Glossary[23]

Participant Groups

- **Control or comparison group** = young people similar to the *intervention group*, and who did not receive the program being evaluated.
- **Treatment or intervention group** = the young people who received the program being evaluated.

Evaluation Design

- **Experimental design** = an evaluation that gathers a set of individuals equally eligible and willing to participate in a program and randomly divides them into two groups: those who receive the *intervention (treatment group)* and those from whom the intervention is withheld (*control group*).
- **Non-experimental design** = an evaluation design for use when it is not possible to select a *control group*, identify a suitable *comparison group* through *matching* methods, or use *reflexive comparisons*.
- **Quasi-experimental design** = an evaluation that constructs a *comparison group* by identifying non-program participants comparable in essential characteristics to participants.

Related Terms

- **Replication** = the same program, evaluated in another place with different young people.
- **Fidelity** = careful *replication* of a program to include all its elements as included in the original evaluation. Where programs were altered, lack of fidelity should be noted.
- **For Use With** = used here to denote the populations of young people with whom evaluation has shown a particular program to be most effective as well as the population for whom it was designed.
- **Significant** = statistically significant, or meaningful difference, as determined by evaluation.

References

1 Baldo M *et al*. *Does Sex Education Lead to Earlier or Increased Sexual Activity in Youth?* Presented at the IXth International Conference on AIDS, Berlin, 6-10 June 1993. Geneva, Switzerland: World Health Organization, 1993.

2 UNAIDS. *Impact of HIV and Sexual Health Education on the Sexual Behaviour of Young People: A Review Update*. [UNAIDS Best Practice Collection, Key Material] Geneva, Switzerland: UNAIDS, 1997.

3 UNAIDS. *Young People and HIV/AIDS: Opportunity in Crisis*. Geneva, Switzerland: UNAIDS, 2002.

4 Institute of Medicine, Committee on HIV Prevention Strategies in the United States. *No Time to Lose: Getting More from HIV Prevention*. Washington, DC: National Academy Press, 2001

5 Kirby D. *Emerging Answers: Research Findings on Programs to Reduce Teen Pregnancy*. Washington, DC: National Campaign to Prevent Teen Pregnancy, 2001.

6 Newton N. *Applying Best Practices to Youth Reproductive Health*. [Lessons Learned from SEATS' Experience] Arlington, VA: John Snow, SEATS Project, 2000.

7 FOCUS on Young Adults. *Advancing Young Adult Reproductive Health: Actions for the Next Decade: End of Program Report*. Washington, DC: Author, 2001.

8 UNAIDS. *Impact of HIV and Sexual Health Education on the Sexual Behaviour of Young People: A Review Update*. Geneva: UNAIDS, 1997.

9 Agha S. A quasi-experimental study to assess the impact of four adolescent sexual health interventions in sub-Saharan Africa. *International Family Planning Perspectives* 2002; 28:67-70, 113-118.

10 Van Rossem R, Meekers D. An evaluation of the effectiveness of targeted social marketing to promote adolescent and young adult reproductive health in Cameroon. *AIDS Education & Prevention* 2000; 12:383-404.

11 Okonofua FE, Coplan P, Collins S, *et al*. Impact of an intervention to improve treatment-seeking behavior and prevent sexually transmitted diseases among Nigerian youth. *International Journal of Infectious Diseases* 2003; 7:61-73.

12 Erulkar AS, Ettyang LIA, Onoka C, *et al*. Behavior change evaluation of a culturally consistent reproductive health program for young Kenyans. *International Family Planning Perspectives* 2004; 30:58-67.

13 Erulkar AS, Ettyand LIA, Onoka C *et al. Nyeri Youth Health Project: Impact of a Community-Driven Reproductive Health Programme for Young People & Community Members in Kenya*. Nairobi: Population Council, 2003.

14 Kim, YM, Kos A, Nyakauru R *et al*. Promoting sexual responsibility among young people in Zimbabwe. *International Family Planning Perspectives* 2001; 27:11-19.

15 Fawole IO, Asuzu MC, Oduntan SO, Brieger WR. A school-based AIDS education programme for secondary school students in Nigeria: a review of effectiveness. *Health Education Research: Theory & Practice* 1999; 14(5):675-683.

16 Shuey DA, Babishangire BB, Omiat S *et a*l. Increased sexual abstinence among in-school adolescents as a result of school health education in Soroti district, Uganda. *Health Education Research: Theory & Practice* 1999; 14:411-419.

17 Gallant M, Maticka-Tyndale E. School-based HIV prevention programmes for African youth. *Social Science & Medicine* 2004; 58:1337-1351.

18 Kagimu M, Marum E, Wabwire-Mangen F *et al*. Evaluation of the effectiveness of AIDS health education interventions in the Muslim community in Uganda. *AIDS Education & Prevention* 1998; 10:215-228.

19 Speizer IS, Tambashe BO, Tegang SP. An evaluation of the "Entre Nous Jeunes" peer educator program for adolescents in Cameroon. *Studies in Family Planning* 2001; 32:339-351.

20 Chao-Hua L, Bo W, Yan S *et al*. Effects of a community-based sex education and reproductive health service program on contraceptive use of unmarried youths in Shanghai. *Journal of Adolescent Health* 2004; 34:433-440.

21 Toledo V, Luengo X, Molina R, et al. Impacto del programa de educación sexual: Adolescencia Tiempo de Decisiones. Sogia 2000; 7(3); http://www.cemera.uchile.cl/sogia/sogia.html.

22 Grizzard T, Gonzáles E, Sandoval J *et al.* Innovations in adolescent reproductive and sexual health education in Santiago de Chile: effects of physician leadership and direct service. *Journal of the American Medical Women's Association* 2004; 59:207-209.

23 World Bank. Definitions. Washington, DC: Author, http://www.worldbank.org/poverty/impact/methods/design.htm

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